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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,762	02/15/2002	Nir Peleg	Q67840	9505

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EXAMINER	
MERED, HABTE	
ART UNIT	**PAPER NUMBER**
2616	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/075,762	Applicant(s) PELEG, NIR	
	Examiner Habte Mered	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-103* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-103* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/15/02&5/21/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The preliminary amendment filed on 02/15/2002 has been entered and fully considered and consequently claim 20 has been amended.

2. Claims 1-103 are pending.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claim 20** recites the limitation "said request threshold" in line 6. There is insufficient antecedent basis for this limitation in the claim.

5. **Claim 27** recites the limitation "said request threshold" in line 6. There is insufficient antecedent basis for this limitation in the claim.

6. **Claim 48** recites the limitation "said request threshold" in line 11. There is insufficient antecedent basis for this limitation in the claim.

7. **Claim 55** recites the limitation "said request threshold" in line 11. There is insufficient antecedent basis for this limitation in the claim.

8. **Claim 76** recites the limitation "said request threshold" in line 10. There is insufficient antecedent basis for this limitation in the claim.

9. **Claim 83** recites the limitation "said request threshold" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims **1, 4, 8, and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (Chen et al, "An Admission Control Scheme for Predictable Server Response Time for Web Access", IEEE, May 1-5, 2001, Pages 545-554), hereinafter referred to as Chen, in view of Doshi et al (Doshi et al, "Overload Performance of Several Processor Queueing Disciplines for the M/M/1 Queue", IEEE, 1986, Pages 538-546), hereinafter referred to as Doshi.

Chen discloses an efficient admission control algorithm for a server's request queue in a client/server system.

12. Regarding **claim 1**, Chen discloses a server capable of receiving requests from at least one client, a server comprising: a queue **(See Figure 4 – primary and backup queues)** for handling requests received from at least one client **(See Figure 4 – client cloud)**; a queue manager **(i.e. Admission Control Manager (ACM))** that uses a request threshold **(See Equation 13)** value. **(See discussion in Section 3.5 for further details)**

Chen fails to disclose an FIFO-Pushout overload control scheme that removes at least the next-to-be handled request from the queue when the number of requests in the queue exceeds a request threshold value.

Doshi teaches five different queue overload control schemes for a single server queue.

Doshi discloses an FIFO-Pushout overload control scheme that removes at least the next-to-be handled request from the queue when the number of requests in the queue exceeds a request threshold value. **(See items 2 and 3 in Column 2 on Page 538, Section B on Page 539, and Section C on Page 541)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to incorporate an FIFO-Pushout overload control scheme. Doshi emphasizes, in the last sentence of Section V, the importance of knowledge of the environment such as network latency when selecting an overload control strategy. The motivation being in an environment where a mean delay is a criterion (i.e. which is the case in both Chen's and Applicant's apparatus) a FIFO-Pushout overload control scheme performs better as indicated by Doshi in Section V, Lines 12-15.

13. Regarding **claim 4**, Chen discloses a server, wherein the queue is a first-in first-out queue. **(See Section 1, Line 5 and Section 3.5, Line 8)**

14. Regarding **claim 8**, Chen discloses a server, wherein the request threshold value is a first predetermined number that is larger than the result of an average response time of the server to a client request divided by an average time used by the server to process the client request. **(See equation 13)**

15. Regarding **claim 9**, Chen discloses a server, wherein the response time is an elapsed time from the receipt of the client request until the time the server completes handling of the client request. **(See Section 4, Lines 1-4 and Section 4.1, Lines 1-9)**

16. **Claims 2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Doshi as applied to claim 1 above, and further in view of Baber et al (US 6, 658, 485), hereinafter referred to as Baber.

17. Regarding **claims 2 and 3**, Chen fails to disclose wherein the server is connected to a client through a network and wherein the network is a local area network (LAN), a wide area network (WAN), an Infiniband network or asynchronous transfer mode (ATM) network.

Baber teaches dynamic priority based scheduling in a message queue system.

Baber discloses a client server system wherein the server is connected to a client through a network and wherein the network is a local area network (LAN), a wide area network (WAN), an Infiniband network or asynchronous transfer mode (ATM) network. **(See Figures 2 and 3A-D and Column 5, Lines 48-67)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to incorporate clients coupled to a server over a network. The motivation being the cost of sharing an application over a server is tremendously decreased because the number of clients accessing a single server via a network is much greater than the number of clients accessing a single server via a direct connection.

18. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Doshi as applied to claim 1 above, and further in view of Emmot et al (US Pub. No. 2002/0145609), hereinafter referred to as Emmot.

Chen fails to disclose that the queue is a virtual queue.

Emmot teaches a unified memory distributed across multiple nodes in a computer graphics system.

Emmot discloses that a queue is a virtual queue. **(See paragraph 59)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use virtual queues. The motivation for using virtual queues is that the physical memory can be partitioned to store different results obtained from different tasks simultaneously in the physical memory and also the size of the virtual memory can be changed dynamically.

19. **Claims 6 and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Doshi as applied to claim 1 above, and further in view of Kleinrock (Leonard Kleinrock, "Queueing Systems Volume 1: Theory", John Wiley & Sons, Inc., 1975, Pages 10-19).

Kleinrock teaches the fundamentals of queuing theory for Queueing Systems.

20. Regarding **claim 6**, Chen fails to disclose a server, wherein the request threshold value is the result of dividing a time interval by an average time used by the server to process the client request wherein the time interval is the average response time of the server.

Kleinrock teaches a server, wherein the request threshold value is the result of dividing a time interval by an average time used by the server to process the client request wherein the time interval is the average response time of the server. **(See page 19, lines 9-17. In particular on page 19 in line 15, Kleinrock shows given an arbitrary long time interval (i.e. which can easily be the server's response time)**

the number of requests in a request queue can be determined by dividing the time interval by the average time used by the server to process a client request and multiplying the resulting quotient by the probability of the server being busy. If the server is always busy, like the Applicant's case, the probability becomes 1 and consequently meets the limitation of the claim. Examiner wants to emphasize that the Applicant has not provided a methodology in determining the request threshold ratio other than to specify the ratio and consequently makes the Applicant's methodology of determining a request threshold ratio arbitrary.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use Kleinrock's method of determining number of requests in a request queue in a given time interval. The motivation being it provides a very simple and practical way to calculate the number of requests in a request queue as stated on page 19 in line 9 and consequently reduces hardware and time used in determining the request queue's threshold.

21. Regarding **claim 7**, Chen discloses a server, wherein the response time is an elapsed time from the receipt of the client request until the time the server completes handling of the client request. **(See Section 4, Lines 1-4 and Section 4.1, Lines 1-9)**

22. **Claims 10-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Doshi as applied to claim 1 above, and further in view of Daniel et al (US 6, 373, 846), hereinafter referred to as Daniel.

23. Regarding **claims 10 and 12**, Chen discloses a server, wherein, prior to processing the queue, the queue manager:

determines if there are requests in the queue and if that determination is not true, waits until a request is present **(This limitation is inherent to any queue manager that resides on a server as a system process.)**

determines if the number of requests in the queue exceeds the request threshold value, and, if that determination is true, repeatedly removes the request in the first slot of the queue and processes the request stored in the first slot of the queue. **(See Section 3.5, Page 549, Lines 1-23 and Page 550, Lines 1-9)**

Chen fails to disclose how a FIFO queue elements are reordered when elements are removed from the head.

Daniel discloses a single networking device with enhanced memory access co-processor.

Daniel discloses how a FIFO queue elements are reordered when elements are removed from the head. **(See Column 4, Lines 65-67 and Column 5, Lines 1-19)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use a means to reorder out of order FIFO queue elements. The motivation being to decrease the wait time of the server until a message reaches the head of the queue.

24. Regarding **Claims 11 and 13**, Chen discloses a server, wherein the queue manager terminates if no requests are found in the queue. **(This limitation is inherent to any queue manager that resides on a server as a system process. System**

processes are designed to be triggered by an event and the event in this case can be the arrival of a request in a queue or a queue being empty more than a specific time.)

25. **Claims 14, 15, 17, and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Doshi as applied to claim 1 above, and further in view of Daniel et al (US 6, 373, 846), hereinafter referred to as Daniel, and Simmons et al (US 6, 192, 028), hereinafter referred to as Simmons.

26. Regarding **Claims 14 and 17**, Chen discloses a server, wherein, prior to processing the queue, the queue manager: determines if there are requests in the queue and, if that determination is not true, waits until a request is present; **(This limitation is inherent to any queue manager that resides on a server as a system process.)**

determines if the number of requests in the queue exceeds the first predetermined number, and, if that determination is true, repeatedly removes the request in the first slot in the queue and processes the request stored in the first slot of the queue. **(See Section 3.5, Page 549, Lines 1-23 and Page 550, Lines 1-9)**

Chen fails to disclose how a FIFO queue elements are reordered when elements are removed from the head.

Daniel discloses how a FIFO queue elements are reordered when elements are removed from the head. **(See Column 4, Lines 65-67 and Column 5, Lines 1-19)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use a means to reorder out of order

FIFO queue elements. The motivation being to decrease the wait time of the server until a message reaches the head of the queue.

Chen fails to disclose the use of two different thresholds for a queue.

Simmons discloses a method and apparatus for providing programmable thresholds for a network switch.

Simmons discloses the use of two different two thresholds for a queue. **(See Figure 4 and 7B indicating high and low watermark thresholds for a queue. See also Column 12, Line 17-43 and Column 13, Line 29-35.)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use two different thresholds for a queue. The motivation being the server will quickly determine queue overflow condition with the first threshold and queue under utilization with the second threshold.

27. Regarding **claims 15 and 18**, Chen discloses a queue manager terminates if no requests are found in the queue. **(This limitation is inherent to any queue manager that resides on a server as a system process. System processes are designed to be triggered by an event and the event in this case can be the arrival of a request in a queue or a queue being empty more than a specific time.)**

28. **Claims 16 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Doshi, Daniel, and Simmons as applied to claims 14 and 17 respectively above, and further in view of Kleinrock (Leonard Kleinrock, "Queueing Systems Volume 1: Theory", John Wiley & Sons, Inc., 1975, Pages 10-19).

Chen fails to disclose a server, wherein the second predetermined number is the result of dividing a time interval by an average time used by the server to process the client request wherein the time interval is the average response time of the server.

Kleinrock teaches a server, wherein the second predetermined number is the result of dividing a time interval by an average time used by the server to process the client request wherein the time interval is the average response time of the server. **(See page 19, lines 9-17. In particular on page 19 in line 15, Kleinrock shows given an arbitrary long time interval (i.e. which can easily be the server's response time) the number of requests in a request queue can be determined by dividing the time interval by the average time used by the server to process a client request and multiplying the resulting quotient by the probability of the server being busy. If the server is always busy, like the Applicant's case, the probability becomes 1 and consequently meets the limitation of the claim. Examiner wants to emphasize that the Applicant has not provided a methodology in determining the request threshold ratio other than to specify the ratio and consequently makes the methodology of determining a request threshold ratio arbitrary.)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use Kleinrock's method of determining number of requests in a request queue in a given time interval. The motivation being it provides a very simple and practical way to calculate the number of requests in a request queue as stated on page 19 in line 9 and consequently reduces hardware and time used in determining the request queue's threshold.

29. **Claims 20, 21, 25, 27, 28, 32, 48, 49, 53, 55, 56, 60, 76, 77, 81, 83, 84 and 88** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Daniel et al (US 6, 373, 846), hereinafter referred to as Daniel.

30. Regarding **Claims 20, 27, 48, 55, 76, and 83**, Chen discloses a server, wherein, prior to processing the queue, the queue manager: determines if there are requests in the queue and if that determination is not true, waits until a request is present **(This limitation is inherent to any queue manager that resides on a server as a system process.)**

determines if the number of requests in the queue exceeds the request threshold value, and, if that determination is true, repeatedly removes the request in the first slot of the queue and processes the request stored in the first slot of the queue. **(See Section 3.5, Page 549, Lines 1-23 and Page 550, Lines 1-9)**

Chen fails to disclose how a FIFO queue elements are reordered when elements are removed from the head.

Daniel discloses how a FIFO queue elements are reordered when elements are removed from the head. **(See Column 4, Lines 65-67 and Column 5, Lines 1-19)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use a means to reorder out of order FIFO queue elements. The motivation being to decrease the wait time of the server until a message reaches the head of the queue.

31. Regarding **Claims 21, 28, 49, 56, 77, and 84**, Chen discloses a server, wherein the queue manager terminates if no requests are found in the queue. **(This limitation is**

inherent to any queue manager that resides on a server as a system process. System processes are designed to be triggered by an event and the event in this case can be the arrival of a request in a queue or a queue being empty more than a specific time.)

32. Regarding **Claims 25, 32, 53, 60, 81, and 88**, Chen discloses a server, wherein the queue is a first-in first-out queue. **(See Section 1, Line 5 and Section 3.5, Line 8)**

33. **Claims 22, 29, 50, 57, 78, and 85** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Daniel as applied to claims 20, 27, 48, 55, 76, and 83 respectively above, and further in view of Kleinrock (Leonard Kleinrock, "Queueing Systems Volume 1: Theory", John Wiley & Sons, Inc., 1975, Pages 10-19).

Chen fails to disclose a server, wherein the request threshold value is the result of dividing a time interval by an average time used by the server to process the client request wherein the time interval is the average response time of the server.

Kleinrock teaches a server, wherein the request threshold value is the result of dividing a time interval by an average time used by the server to process the client request wherein the time interval is the average response time of the server. **(See page 19, lines 9-17. In particular on page 19 in line 15, Kleinrock shows given an arbitrary long time interval (i.e. which can easily be the server's response time) the number of requests in a request queue can be determined by dividing the time interval by the average time used by the server to process a client request and multiplying the resulting quotient by the probability of the server being busy. If the server is always busy, like the Applicant's case, the probability becomes 1**

and consequently meets the limitation of the claim. Examiner wants to emphasize that the Applicant has not provided a methodology in determining the request threshold ratio other than to specify the ratio and consequently makes the Applicant's methodology of determining a request threshold ratio arbitrary.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use Kleinrock's method of determining number of requests in a request queue in a given time interval. The motivation being it provides a very simple and practical way to calculate the number of requests in a request queue as stated on page 19 in line 9 and consequently reduces hardware and time used in determining the request queue's threshold.

34. **Claims 23, 24, 30, 31, 51, 52, 58, 59, 79, 80, 86, and 87** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Daniel as applied to claims 20, 27, 48, 55, 76, and 83 respectively above, and further in view of Baber et al (US 6, 658, 485), hereinafter referred to as Baber.

Chen fails to disclose wherein the server is connected to a client through a network and wherein the network is a local area network (LAN), a wide area network (WAN), an Infiniband network or asynchronous transfer mode (ATM) network.

Baber discloses a client server system wherein the server is connected to a client through a network and wherein the network is a local area network (LAN), a wide area network (WAN), an Infiniband network or asynchronous transfer mode (ATM) network. **(See Figures 2 and 3A-D and Column 5, Lines 48-67)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to incorporate clients coupled to a server over a network. The motivation being the cost of sharing an application over a server is tremendously decreased because the number of clients accessing a single server via a network is much greater than the number of clients accessing a single server via a direct connection.

35. **Claims 26, 33, 54, 61, 82, and 89** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Daniel as applied to claims 20, 27, 48, 55, 76, and 83 respectively above, and further in view of Emmot et al (US Pub. No. 2002/0145609), hereinafter referred to as Emmot.

Chen fails to disclose that the queue is a virtual queue.

Emmot discloses that a queue is a virtual queue. **(See paragraph 59)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use virtual queues. The motivation for using virtual queues is that the physical memory can be partitioned to store different results obtained from different tasks simultaneously in the physical memory and also the size of the virtual memory can be changed dynamically.

36. **Claims 34, 35, 39, 41, 42, 46, 62, 63, 67, 69, 70, 74, 90, 91, 95, 97, 98, and 102** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Daniel et al (US 6, 373, 846), hereinafter referred to as Daniel, and Simmons et al (US 6, 192, 028), hereinafter referred to as Simmons.

37. Regarding **Claims 34, 41, 62, 69, 90, and 97**, Chen discloses a server, wherein, prior to processing the queue, the queue manager: determines if there are requests in the queue and, if that determination is not true, waits until a request is present; **(This limitation is inherent to any queue manager that resides on a server as a system process.)**

determines if the number of requests in the queue exceeds the first predetermined number, and, if that determination is true, repeatedly removes the request in the first slot in the queue and processes the request stored in the first slot of the queue. **(See Section 3.5, Page 549, Lines 1-23 and Page 550, Lines 1-9)**

Chen fails to disclose how a FIFO queue elements are reordered when elements are removed from the head.

Daniel discloses how a FIFO queue elements are reordered when elements are removed from the head. **(See Column 4, Lines 65-67 and Column 5, Lines 1-19)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use a means to reorder out of order FIFO queue elements. The motivation being to decrease the wait time of the server until a message reaches the head of the queue.

Chen fails to disclose the use of two different thresholds for a queue.

Simmons discloses the use of two different two thresholds for a queue. **(See Figure 4 and 7B indicating high and low watermark thresholds for a queue. See also Column 12, Line 17-43 and Column 13, Line 29-35.)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use two different thresholds for a queue. The motivation being the server will quickly determine queue overflow condition with the first threshold and queue under utilization with the second threshold.

38. Regarding **Claims 35, 42, 63, 70, 91, and 98**, Chen discloses a server, wherein the queue manager terminates if no requests are found in the queue. **(This limitation is inherent to any queue manager that resides on a server as a system process. System processes are designed to be triggered by an event and the event in this case can be the arrival of a request in a queue or a queue being empty more than a specific time.)**

39. Regarding **Claims 39, 46, 67, 74, 95, and 102**, Chen discloses a server, wherein the queue is a first-in first-out queue. **(See Section 1, Line 5 and Section 3.5, Line 8)**

40. **Claims 36, 43, 64, 71, 92, and 99** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Daniel and Simmons as applied to claims 34, 41, 62, 69, 90, and 97 respectively above, and further in view of Kleinrock (Leonard Kleinrock, "Queueing Systems Volume 1: Theory", John Wiley & Sons, Inc., 1975, Pages 10-19).

Chen fails to disclose a server, wherein the second predetermined number is the result of dividing a time interval by an average time used by the server to process the client request wherein the time interval is the average response time of the server.

Kleinrock teaches a server, wherein the second predetermined number is the result of dividing a time interval by an average time used by the server to process the client request wherein the time interval is the average response time of the server. **(See**

page 19, lines 9-17. In particular on page 19 in line 15, Kleinrock shows given an arbitrary long time interval (i.e. which can easily be the server's response time) the number of requests in a request queue can be determined by dividing the time interval by the average time used by the server to process a client request and multiplying the resulting quotient by the probability of the server being busy. If the server is always busy, like the Applicant's case, the probability becomes 1 and consequently meets the limitation of the claim. Examiner wants to emphasize that the Applicant has not provided a methodology in determining the request threshold ratio other than to specify the ratio and consequently makes the methodology of determining a request threshold ratio arbitrary.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use Kleinrock's method of determining number of requests in a request queue in a given time interval. The motivation being it provides a very simple and practical way to calculate the number of requests in a request queue as stated on page 19 in line 9 and consequently reduces hardware and time used in determining the request queue's threshold.

41. **Claims 37, 38, 44, 45, 65, 66, 72, 73, 93, 94, 100, and 101** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Daniel and Simmons as applied to claims 34, 41, 62, 69, 90, and 97 respectively above, and further in view of Baber et al (US 6, 658, 485), hereinafter referred to as Baber.

Chen fails to disclose wherein the server is connected to a client through a network and wherein the network is a local area network (LAN), a wide area network (WAN), an Infiniband network or asynchronous transfer mode (ATM) network.

Baber discloses a client server system wherein the server is connected to a client through a network and wherein the network is a local area network (LAN), a wide area network (WAN), an Infiniband network or asynchronous transfer mode (ATM) network. **(See Figures 2 and 3A-D and Column 5, Lines 48-67)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to incorporate clients coupled to a server over a network. The motivation being the cost of sharing an application over a server is tremendously decreased because the number of clients accessing a single server via a network is much greater than the number of clients accessing a single server via a direct connection.

42. **Claims 40, 47, 68, 75, 96, and 103** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Daniel and Simmons as applied to claims 34, 41, 62, 69, 90, and 97 respectively above, and further in view of Emmot et al (US Pub. No. 2002/0145609), hereinafter referred to as Emmot.

Chen fails to disclose that the queue is a virtual queue.

Emmot discloses that a queue is a virtual queue. **(See paragraph 59)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chen's apparatus to use virtual queues. The motivation for using virtual queues is that the physical memory can be partitioned to store different

results obtained from different tasks simultaneously in the physical memory and also the size of the virtual memory can be changed dynamically.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Habte Mered whose telephone number is 571 272 6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571 272 3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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